

CLAIMS

Having thus described the aforementioned invention, we claim:

1. An apparatus for temperature conditioning a seat that is exposed to an environment, said apparatus comprising:

5 a first heat exchanger coupled to a seat, said first heat exchanger forming a liquid tight bladder through which a first heat transfer fluid is circulated;

a second heat exchanger in fluid communication with said first heat exchanger;

10 a first pump for forcing said first heat transfer fluid between said first heat exchanger and said second heat exchanger;

a thermoelectric device having a first surface and a second surface, said first surface thermally coupled to said second heat exchanger;

a third heat exchanger thermally coupled to said second surface of said thermoelectric device;

15 a radiator in fluid communication with said third heat exchanger;

a second pump for forcing a second heat transfer fluid between said third heat exchanger and said radiator; and

20 a controller providing power to said thermoelectric device, said controller selectively heating one of said first and second surfaces, said controller selectively cooling the other of said first and second surfaces.

2. The apparatus of Claim 1 wherein said second heat exchanger includes an air chamber.

3. The apparatus of Claim 1 further including a means for forming an air chamber in said second heat exchanger.

4. The apparatus of Claim 1 further including a temperature selector, said temperature selector in communication with said controller, said controller varying a current flowing through said thermoelectric device.

5. The apparatus of Claim 1 further including a switch for reversing a polarity of a direct current voltage applied to said thermoelectric device.

6. An apparatus for temperature conditioning a seat that is exposed to an environment, said apparatus comprising:

a first heat exchanger coupled to a seat;

a second heat exchanger in fluid communication with said first heat exchanger;

a first pump for forcing a first heat transfer fluid between said first heat exchanger and said second heat exchanger;

a thermoelectric device having a first surface and a second surface, said first surface thermally coupled to said second heat exchanger;

a third heat exchanger thermally coupled to said second surface of said thermoelectric device; and

a controller providing power to said thermoelectric device, said controller selectively heating one of said first and second surfaces, said controller selectively cooling the other of said first and second surfaces.

7. The apparatus of Claim 6 wherein said second heat exchanger includes an air chamber.

8. The apparatus of Claim 6 further including a means for forming an air chamber in said second heat exchanger.

9. The apparatus of Claim 6 further including a temperature selector, said temperature selector in communication with said controller, said controller varying a current flowing through said thermoelectric device.

10. The apparatus of Claim 6 further including a switch for reversing a
5 polarity of a direct current voltage applied to said thermoelectric device.

11. The apparatus of Claim 6 further including a radiator in fluid communication with said third heat exchanger and a second pump for forcing a second heat transfer fluid between said third heat exchanger and said radiator.

12. The apparatus of Claim 6 further including a heat sink on said third
10 heat exchanger, and a fan circulating air across said heat sink.

13. The apparatus of Claim 6 wherein said first heat exchanger is a coil imbedded in said seat, said first heat transfer fluid flowing through said coil.

14. The apparatus of Claim 6 wherein said first heat exchanger is a bladder with channels for directing said first heat transfer fluid through said
15 bladder.

15. The apparatus of Claim 6 further including a safety cutout device for stopping a direct current voltage applied to said thermoelectric device, said safety cutout device sensing a temperature and operating when said sensed temperature exceeds a selected temperature.

20 16. The apparatus of Claim 15 further including a thermistor for sensing said temperature.

17. An apparatus for temperature conditioning a seat that is exposed to an environment, said apparatus comprising:

a means for changing a temperature of a liquid;
a means for transferring said liquid to a heat exchanger coupled to a seat;
and
a means for conducting thermal energy between said liquid and said seat.

5 18. The apparatus of Claim 17 further including a means for controlling a temperature of said liquid.

19. The apparatus of Claim 17 further including a means for transferring thermal energy between said means for changing said temperature and the environment.

10 20. An apparatus for temperature conditioning a seat that is exposed to the environment, said apparatus comprising:

a heat sink;

a fan circulating air across said heat sink;

15 a thermoelectric device having a first surface and a second surface, said first surface thermally coupled to said heat sink;

a first heat exchanger thermally coupled to said second surface of said thermoelectric device;

a seat heat exchanger;

20 a heat transfer liquid in thermal communication with said first heat exchanger and said seat heat exchanger; and

a pump for circulating said heat transfer liquid;

whereby said thermoelectric device selectively heats and cools said heat transfer liquid, which selectively heats and cools the seat.

21. The apparatus of Claim 20 further including a controller and a temperature selector, said temperature selector in communication with said controller, said controller varying a current flowing through said thermoelectric device.

5 22. The apparatus of Claim 21 further including a thermistor for sensing a temperature, said thermistor communicating with said controller.

23. The apparatus of Claim 20 further including a switch for reversing a polarity of a direct current voltage applied to said thermoelectric device, said switch causing said second surface to selectively heat and cool said heat exchanger.